

CLAIMS

What is claimed is:

1. A method of handling oversubscribed ports between switches, the method
5 comprising:
detecting an oversubscribed port at a detecting switch;
selecting a set of paths exiting at the oversubscribed port for retagging;
invalidating tags for the set of paths;
receiving packets with the invalidated tags; and
10 retagging the received packets with a tag associated with a detour path.
2. The method of claim 1 further comprising determining the detour path
from the detecting switch to a destination switch for the set of paths.
- 15 3. The method of claim 1 further comprising informing an owner switch of the
set of paths that the paths are to be retagged by the detecting switch.
4. The method of claim 3, wherein more than one owner switch is so
informed.
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5. The method of claim 3 further comprising the owner switch moving at
least some MAC addresses associated with the set of paths.
6. The method of claim 5, wherein the owner switch moves all MAC
25 addresses associated with the set of paths.
7. The method of claim 1, wherein the detecting switch is different from an
owner switch of the set of paths.
- 30 8. The method of claim 1, wherein the detecting switch comprises a same
switch as an owner switch of the set of paths.

9. The method of claim 1, wherein the set of paths includes at least one path.
10. The method of claim 1, wherein the switches are part of a switching mesh.
- 5 11. The method of claim 1, wherein a tag for a path comprises an owner switch identifier, a destination switch identifier, and a path identifier.
- 10 12. A packet switch apparatus with oversubscribed port handling capability for use in a switching mesh, the apparatus including:
a plurality of ports; and
a switch controller coupled to the plurality of ports,
wherein the switch controller is configured using procedures stored in
memory to (a) detect an oversubscribed port, (b) select a set of
15 paths exiting at the oversubscribed port for retagging, (c) invalidate tags for the set of paths, (d) receive packets with the invalidated tags, and (e) retag the received packets with a tag associated with a detour path.
- 20 13. The apparatus of claim 12 wherein the switch controller is further configured to determine the detour path from the detecting switch to a destination switch for the set of paths.
- 25 14. The apparatus of claim 12 wherein the switch controller is further configured to inform an owner switch of the set of paths that the paths are to be retagged by the detecting switch.
- 30 15. The apparatus of claim 12, wherein a tag for a path comprises an owner switch identifier, a destination switch identifier, and a path identifier.
16. A switching mesh including a capability to handle oversubscribed ports between switches, wherein each switch in the mesh is configured to detect an oversubscribed port, select a set of paths exiting at the

oversubscribed port for retagging, invalidate tags for the set of paths, receive packets with the invalidated tags, and retag the received packets with a tag associated with a detour path.

- 5 17. The switching mesh of claim 16, wherein a switch detecting an oversubscribed port is configured to determine a number of path tags associated with the oversubscribed port and to operate in at least two modes depending on the number of associated path tags.
- 10 18. The switching mesh of claim 17, wherein if the number of associated path tags is larger than a threshold, then a first mode is used where some of the associated path tags are retagged by the detecting switch to a detour path tag, and the owner switch(es) of those retagged paths are informed that those paths are no longer being used.
- 15 19. The switching mesh of claim 18, wherein if the number of associated path tags is smaller than a threshold, then a second mode is used without retagging by the detecting switch.
- 20 20. The switching mesh of claim 19, wherein in the second mode, a set of at least one path tag is chosen, and the owner switch(es) of the chosen tags is (are) informed of the oversubscribed port.
- 25 21. The switching mesh of claim 20, wherein an informed owner switch reassigns at least one MAC address associated with the chosen tag(s) to another, less costly path tag.